KENDRIYA VIDYALAYA SANGATHAN (DELHI REGION)   16P
SECOND PRE BOARD
EXAMINATION
COMPUTER SCIENCE – NEW (083)
(2019-20) CLASS- XII
MARKING SCHEME
SET 1

Max. Marks: 70

General Instructions: **Time: 3 hrs**

- All questions are compulsory.

- Question paper is divided into 4 sections A, B, C and D.
  - ☐ Section A : Unit-1
  - ☐ Section B : Unit-2
  - ☐ Section C: Unit-3
  - ☐ Section D: Unit-4

SECTION-A

Q1	(a)	Which of the following is valid literal in Python: (i) 123 (ii) '123' (iii) 4+5j (iv) All of these	1
	Ans.	(iv)	
	(b)	Write one similarity between Tuples and Lists.	1
	Ans.	List and Tuples are sequences in Python used to store the number of elements. Elements of different data types can be stored in the List as well as in the Tuple.	
	(c)	Observe the following Python functions and write the name(s) of the module(s) to which they belong: (i) writer () (ii) show()	1
	Ans.	(i) Import csv (ii)import Matplotlib	
	(d)	Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code.	2

| | | ```
def execmain()
        X = input("Enter a number:")
        If (abs(x) = x)
            print ("You entered a positive number")
        else:
            X=*-1
            print ("number is positive:"x)


execmain()
``` | |

| Ans | ```
def execmain() :
        X = input("Enter a number:")
        If (abs(x) == x) :
            print ("You entered a positive number")
        else:
            X *= -1
            print ("number is positive:",x)
execmain()
``` |
|---|---|

(e)	Write the output of the following Python program code:	2

```
def makenew(mystr):
newstr = " "
count = 0
for i in mystr:
 if (count%2 !=0):
   newstr = newstr+str(count)
 else:
 if (i.islower()):
 newstr = newstr+i.upper()
 else:
  newstr = newstr+i

 count +=1
 newstr = newstr+mystr[:1]
```

	print ("The new string is :",newstr) makenew("sTUdeNT")	
Ans	The new string is : Ts	

(f)	Find and write the output of the following python code:
	x = 50
	
	def func():
	  global x
	
	  print('x is', x)
	  x = 2
	  print('Changed global x to', x)
	func()
	print('Value of x is', x)
		3

Ans	x is 50 *Changed global x to 2* Value of x is 2	
(g)	Observe the following Python code and find out , which out of the given options i) to iv) are the expected correct output(s).Also assign the maximum and minimum value that can be assigned to the variable 'Go'. import random X =[100,75,10,125] Go = random.randint(0,3) for i in range(Go): print (X[i],"$$",end= " ") (i.) 100$$75$$10 (ii). 75$$10$$125$$ (iii). 75$$10$$ (iv).10$$125$$100	2
Ans	Option (i) is correct 100 $$ 75 $$ 10 $$ Minimum Value that can be assigned to Go is 0 Maximum Value that can be assigned to Go is 3	

Q 2	(a)	What do you understand by concatenation of strings?	1
	Ans.	String concatenation is the operation of joining character strings end-to-end. For example, the concatenation of "snow" and "ball" is "snowball".	
	(b)	Which of the following statements create a dictionary? a) d = {} b) d = {"john":40, "peter":45} c) d = {40:"john", 45:"peter"} d) All of the mentioned	1
	Ans.	(d)	
	(c)	Suppose list1 is [2, 33, 222, 14, 25], What is list1[:-1]? a) [2, 33, 222, 14] b) Error c) 25 d) [25, 14, 222, 33, 2]	1
	Ans.	(a)	
	(d)	What will be the output of the following Python code? i = 1 while False: if i%2 == 0: break print(i) i += 2	1
	Ans.	No output Explanation: Control does not enter the loop because of False.	
	(e)	What will be the output of the following Python code? def f1(): global x x+=1 print(x)	1

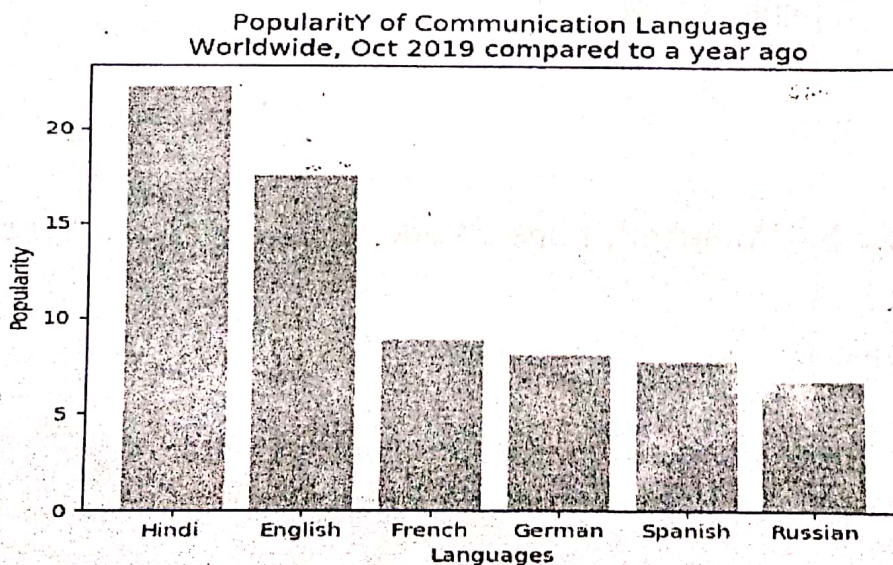|		
	x=12 f1() print("x")	
Ans.	13 x	

(f)	What will be the output of the following Python code?
	
	``python
	def f(p, q, r):
	    global s
	    p = 10
	    q = 20
	    r = 30
	    s = 40
	    print(p,q,r,s)
	p,q,r,s = 1,2,3,4
	f(5,10,15)
	``
		2

Ans.	10 20 30 40	
(g)	A bar chart is drawn(using pyplot) to represent weather forecast of different cities of India, for a month. Write appropriate statements in Python to provide labels Month - December and Temp in degrees to x and y axis respectively.	2

Ans.	```python
	import matplotlib.pyplot as plt
	
	import numpy as np
	
	city=('Goa','Delhi','Mumbai','Pune','Vadodara','Chennai','Agra')
	
	y_pos=np.arange(len(city))
	
	temp=[25.5,32,22,20,23,33,28]
	
	plt.bar(y_pos,sale,align='center',alpha=0.5)
	``	

```
plt.xticks(y_pos,model)
plt.xlabel('Month-December')
plt.ylabel('Temperature in degrees')
plt.title('Weather forecast of different cities of a India')
plt.show()
```

OR

Write output of the following code:

```
import matplotlib.pyplot as plt
import numpy as np
x=('Hindi', 'English', 'French', 'German', 'Spanish', 'Russian')
y_pos=np.arange(len(x))
popularity=[22.2, 17.6, 8.8, 8, 7.7, 6.7]
plt.bar(y_pos,popularity)
plt.xticks(y_pos,x)
plt.xlabel("Languages")
plt.ylabel("Popularity")
plt.title("PopularitY of Communication Language\n" + "Worldwide, Oct 2019 compared to a year ago")
plt.show()
```

Ans

(h)	Write a function in python to count the number of words in a text file 'Episode.TXT' which is starting with an alphabet 'P'.	2
| Ans | ```python
def COUNTLINES():
    f=open("e.txt",'r')
    data=f.read()
    w=data.split()
    count=0
    for i in w:
        if (i[0]=='P'):
            count+=1
    print(count)
    f.close()
``` | |

<div align="center">OR</div>

	Write a method/function DISPLAYWORDS() in python to read lines from a text file Episode.TXT, and display those words, which are less than 4 characters but more than 1 character.	
| Ans | ```python
def DISPLAYWORDS():
    c=0
    file=open('e.txt','r')
    line = file.read()
    word = line.split()
    for w in word:
        if(len(w)>1 and len(w)<4):
            print(w)
    file.close()
``` | |

	Write a Recursive function in python BinarySearch(Arr,l,R,X) to search the given element X to be searched from the List Arr having R elements,where l represents lower bound and R represents the upper bound.	3

<div align="center">OR</div>

Define a Recursive function to calculate the sum of the first n natural numbers.

```
def BinarySearch (Arr,l,R,X):
    if(R >= l):
        mid = l + (R-l)//2
        if(Arr[mid] == X):
            return mid
        elif(Arr[mid] > X):
            return BinarySearch(Arr,l,mid-1,X)
        else:
            return BinarySearch(Arr,mid+1,r,X)
    else:
        return -1
Arr = [ 2, 3, 4, 10, 40 ]
X =int(input(' enter element to be searched'))
result = BinarySearch(Arr,0,len(Arr)-1,X)
if(result != -1):
    print ("Element is present at index ", result)
elif(result==-1):
    print ("Element is not present in array")
```

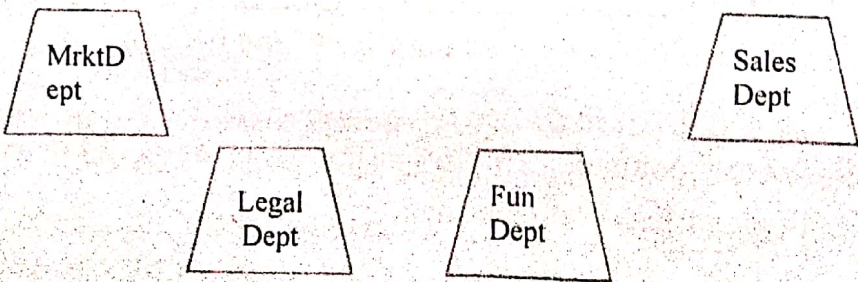|		
	OR	
Ans	```def sumofn(n): if n==1: return 1 return n+sumofn(n-1)print(sumofn(16))```	
(j)	Write a function in Python, Enqueue(List,val) and Dequeue(val) for performing insertion and deletion operations in a Queue. List is the list used for implementing queue and Val is the value to be inserted.	4
	OR	

		Write a function in python, Push(Box) and Pop(Box) to add a new Package and delete a Package from a List of Box Description, considering them to act as push and pop operations of the Stack data structure.	

	Ans	def Enqueue(List,val):
		      Val=int(input("enter data to be inserted: "))
		     List.append(Val)
		def DELETEQ(List):
		    if (List==[]):
		        print("Queue empty")
		   else:
		       print ("Deleted element is: ",List[0])
		     del(List[0])	

<div align="center">OR</div>

```
def Push(Box):
        a=int(input("enter Box title : "))
        Box.append(a)
def Pop(Box):
    if (Box==[]):
        print( "Stack empty")
    else:
        print ("Deleted element:",Box.pop())
```

<div align="center">SECTION B</div>

Q 3		Questions 3 (a) to 3 (c) : Fill in the blanks	
	(a)	Router is a network device that forwards data from one network to another.	1
	(b)	IoT is a phenomenon that connects the things (the smart devices) to the internet over wired or wireless connections	1
	(c)	Traceroute is a utility to view the number of hops response time to get to a remote system or website.	1

(d)	WHOIS is a query command that is used to get information on a specific domain name.	1
(e)	Give the full forms of the following	2
	(i) MAC – Media Access control	
	(ii) NIC – Network Interface card	
	(iii) VoIP = Voice over Internet Protocol	
	(iv) HTTPS – Hyper Text Transfer protocol secure	
(f)	Why are protocols needed? Give example of any protocol.	2
Ans.	Network protocols are needed because it include mechanisms for devices to identify and make connections with each other, as well as formatting rules that specify how data is packaged into messages sent and received	
(g)	Identify the type of cyber-crime for the following situations: (i) Ankit is complaining that he is being harassed or threatened by someone by sending mean messages through instant messages (IMs), phone calls, text. (ii) Driver's license ID Theft. (iii) A cyber stalker doesn't physically follow his victim; he does it virtually by following his online activity to harvest information about the stalker and harass him or her and make threats using verbal intimidation.	
Ans.	(i) Cyber Bullying (ii) Identity Theft (iii) Cyber Stalking	
(h)	SunRise Pvt. Ltd. is setting up the network in the Ahmadabad. There are four departments named as MrktDept, FunDept, LegalDept, SalesDept. MrktDept SalesDept Legal Dept Fun Dept	

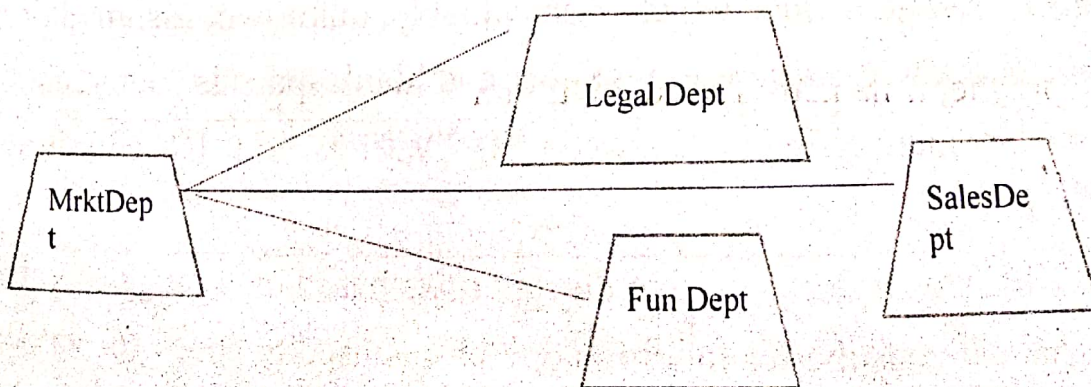Distance between various buildings is given as follows:

MrktDept to FunDept 80 m

MrktDept to LegalDept 180m

MrktDept to SalesDept 100 m

LegalDept to SalesDept 150 m

LegalDept to FunDept 100 m

FunDept to SalesDept 50 m

Number of Computers in the buildings:

MrktDept 120

LegalDept 10

FunDept 08

SalesDept 42

i) Suggest a cable layout of connections between the Departments and specify topology.

ii) Suggest the most suitable building to place the server with a suitable reason.

iii) Suggest the placement of i) modem ii) Hub /Switch in the network.

iv) The organization is planning to link its sale counter situated in various part of the same city/ which type of network out of LAN, WAN, MAN will be formed? Justify.

Ans

Star Topology should be used.

ii) Suggest the most suitable building to place the server a suitable reason with a suitable reason.

Ans.: As per 80 – 20 rule, MrktDept ,because it has maximum no. of computers.

iii) Suggest the placement of i) modem ii) Hub /Switch in the network.

Ans.: Each building should have hub/switch and Modem in case Internet connection is required.

iv) The organization is planning to link its sale counter situated in various part of the same city/ which type of network out of LAN, WAN, MAN will be formed? Justify.

Ans. : MAN (Metropolitan Area Network)

SECTION C

Q 4	(a)	Why constrains are used?	1
	Ans.	Constraints are used to specify the limit on the data type of the table. It can be specified while creating or altering the table statement.	
	(b)	What is a Foreign key?	
	Ans.	Foreign key maintains referential integrity by enforcing a link between the data in two tables.	
	(c)	Are NULL values same as that of zero or a blank space?	1
	Ans.	A NULL value is not at all same as that of zero or a blank space. NULL value represents a value which is unavailable, unknown, assigned or not applicable whereas a zero is a number and blank space is a character.	
	(d)	What is the main difference between 'BETWEEN' and 'IN' condition operators?	1
	Ans.	BETWEEN operator is used to display rows based on a range of values in a row whereas the IN condition operator is used to check for values contained in a specific set of values.	

(e)	Differentiate between Candidate Key and Alternate Key.	2
Ans .	Candidate key: A column or a set of columns can be called as candidate key if they identify each row of a table uniquely. ... Alternate key: There can be more than one keys which can identify each row of the table uniquely. One of them is defined as primary key and rest of them is called alternate keys of the table.	
(f)	What is the role of manage.py in Django? Write complete command.	2
Ans .	In **Django** project, we could **manage** by executing some **commands** which could be invoked through the **manage.py**. **Management Command** is used to create our own actions with **manage.py**. If your app is in project directory then create the directories project directory/app/**management/commands**.	
(g)	Write a output for SQL queries (i) to (iii), which are based on the table: CONSIGNOR	

TABLE : CONSIGNOR

CnorID	CnorName	CnorAddress	City	Gender
ND01	RSinghal	24ABC Enclave	NewDelhi	M
ND02	Amit Kumar	123Palm Avenue	NewDelhi	M
MU15	RKohli	5ASouthStreet	Mumbai	M
MU50	SKaur	27Sukhdev Enclave	Pune	F

(i) SELECT COUNT(*), City FROM CONSIGNOR GROUP BY CITY HAVING COUNT(*)>1;

(II) SELECT DISTINCT City FROM CONSIGNOR;

(III) SELECT CnorName, CneeAddress FROM Consignor WHERE CnorCity NOT IN ('Mumbai', 'Kolkata');

Ans	(i) 2 New Delhi

	(ii)	<table><tr><td>NewDelhi</td></tr><tr><td>Mumbai</td></tr><tr><td>Pune</td></tr></table>
	(iii)	<table><tr><td>RSinghal</td><td>24ABC Enclave</td></tr><tr><td>Amit Kumar</td><td>123Palm Avenue</td></tr><tr><td>SKaur</td><td>27Sukhdev Enclave</td></tr></table>
(h)	Write SQL queries for (i) to (iv), which are based on the table: **Consignor** given in the question 4(g):	
	(i) Display details of all consignors of Mumbai in order of their name. (ii) Display name of consignor living in any Enclave. (iii) Display details of female consignors. (iv) *To find no of consignors living in each city along with city name.*	
Ans.	(i) select * from consignor where city = 'Mumbai' order by name. (ii) select * from consignor where address like '%Enclave%' (iii) Select * from consignor where gender="F"; (iv) Select city, count(*) from consignor group by city.	

SECTION D

Q 5	(a)	The information about a particular person that exists on the internet as a result of their online activity.	1
	Ans.	Digital Footprint	
	(b)	What is e-Waste?	1

Ans.	Electronic waste or e-waste describes discarded electrical or electronic devices. Used electronics which are destined for refurbishment, reuse, resale, salvage recycling through material recovery, or disposal are also considered e-waste.	
(c)	Write two ways to protect your digital content .	2
Ans.	Use Anti-Temper solutions which ensures your digital property is tamper-proof which prevents from hackers from hacking the property. ☐ Add legal clause in your property for the reuse of digital property. ☐ Share the digital property with trusted individuals only.	
(d)	A thief can create a totally new account under your name using a variety of tactics. That might include digging credit card applications out of . your trash and submitting them. Or it might involve scouring the Internet for your personal details. Identify and explain the cybercrime being discussed in the above scenario.	2
Ans.	Identity theft. An identity thief might use that information to access and drain your bank accounts, damage your credit, or more.	
(e)	What is Cyber Law and IT Act?	2
Ans.	Cyber Law and IT Act: Cyber law refers to all the legal and regulatory aspects of internet and WWW. Cyber law touches all the transactions and activities of internet, WWW. In India cyber law was enforced through IT Act, 2000 based on UNCITRAL (United Nations Commission for International Trade	

		Related Laws). It purpose is to provide legal recognition to electronic commerce.	
	(f)	Write two Gender issues while teaching computers.	2
	Ans	1. During initial stage children often play games on computers and smart phones. Most of the games are boys-centric that increases their interest in computers. 2. Girls are always told directly/indirectly in households that you have to play important family role later on and computer science consume most of your time.	